

Replace Ignition— Reduce False Starts



Partner Reported Opportunities (PROs)
for Reducing Methane Emissions

PRO Fact Sheet No. 104

Applicable sector(s):

☒ Production ☒ Processing ☒ Transmission and Distribution

Partners reporting this PRO: Southern California Gas Company

Other related PROs: Convert Engine Starting to Nitrogen, Install Electric Starters, Reduce the Frequency of Engine Starts with Gas, Install Electric Compressors

Compressors/Engines ☒
Dehydrators ☐
Pipelines ☐
Pneumatics/Controls ☐
Tanks ☐
Valves ☐
Wells ☐
Other ☐

Technology/Practice Overview

Description

Before starting up a compressor, the discharge header is unloaded by depressuring gas to the atmosphere. The engine is then turned over, often using a gas-expansion turbine starter motor. Both of these operations vent methane to the atmosphere. In cases where the ignition system is in poor condition, the engine will not start promptly, or stall when the compressor is loaded. Each engine false start will result in excessive methane emissions.

One partner reported reducing false starts by replacing old ignition systems with a newer system design. In addition to eliminating methane emissions from repeated false starts, new ignition systems can significantly reduce operating costs.

Operating Requirements

Electronic ignition systems require a small amount of electricity, such as can be provided by a solar recharged battery.

Applicability

This technology upgrade may be applied to all engine driven compressors, pumps, and generators with outdated ignition systems.

Methane Emissions Reductions

The avoided methane emissions are based on natural gas used to start the engine on a reciprocating compressor. This requires 0.5 scf per horsepower of natural gas stored at 250 to 350 psig. One partner reported reducing false starts from 150 to 10 per unit by replacing the ignition system, and saving 1,150 scf of methane per start.

Methane Savings: 21 Mcf per year

Costs

Capital Costs (including installation)

☐ <\$1,000 ☒ \$1,000 – \$10,000 ☐ >\$10,000

Operating and Maintenance Costs (annual)

☒ <\$100 ☐ \$100-\$1,000 ☐ >\$1,000

Payback (Years)

☒ 0–1 ☐ 1–3 ☐ 3–10 ☐ >10

Benefits

Reducing methane emissions was an associated benefit of the project

Economic Analysis

Basis for Costs and Savings

Methane emissions reductions of 21 Mcf per year result from replacing the ignition system on one 3,000-hp internal combustion engine and reducing startup attempts from 15 to 1 per year.

Discussion

This technology can pay back quickly. The primary justification is a reduction in operating costs. A unit with more than 100 false starts per year is an inconvenience to a company, as personnel must spend an inordinate amount of time attending to the unit. The value of natural gas savings coupled with significant labor savings will pay back the cost of upgrading ignition systems.